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CMSC 270

Homework 0

1.a. As the limit of x goes to ∞ 1. will be the larger polynomial because it has a degree of 3 and 2. has a degree of 2. So 1 grows faster.

1.b. As the limit of x goes to ∞ 1. will be the larger polynomial because it has a degree of 7 and 2. has a degree of 6. So 1 grows faster.

1.c. As the limit of x goes to ∞ 2. will be the larger polynomial because they both have the same degree but 2 has a coefficient of x^4 that is 21 and has $+x^3$ so 2 grows faster.

2.a. $\log_2(x) = 8 \rightarrow \boxed{x = 2^8}$

2.c. $x = \log_4(32)$

$x = \frac{\log_2(32)}{\log_2(4)} \longrightarrow \log_2(32) = y \quad 2^y = 32 \quad y = 5$

$\log_2(4) = z \quad 2^z = 4, \quad z = 2$

$x = 5/2$

2.b. $\log_5(x) = \log_5(2) + 25$

$\log_5(x) - \log_5(2) = 25$

$\log_5\left(\frac{x}{2}\right) = 25$

$\frac{x}{2} = 5^{25} \quad \boxed{x = 2 \cdot 5^{25}}$

3. ["Howdy", "Hello", "Hey"]